

## CLAIM AMENDMENTS

1           1. (original) Method for measuring the polarization  
2 mode dispersion of an optical fiber applying an optical signal to a  
3 first end of the fiber {11} and coupling a second end of the fiber  
4 (111) to an interferometer (25), said method comprising the step  
5 of:

6           generating by means of said interferometer (25) at least  
7 one interferogram comprising at least a central peak and two side  
8 lobes having a determined information content; and being character-  
9 ized by the steps of

10           processing said interferogram in such a way as to measure  
11 the information content of at least one of said two side lobes;  
12 and

13           determining the polarization mode dispersion of the fiber  
14 associating to said measurement of said information content a  
15 probability density function representative of the polarization  
16 mode dispersion (PMD) of the fiber in the form of differential  
17 group delay.

1           2. (original) Method as claimed in claim 1 character-  
2 ized in that said step of determining the polarization mode disper-  
3 sion comprises the step of

4           computing the deconvolution of said at least one side  
5 lobe with said central peak so that said deconvolution corresponds

6 to the probability density of the differential group delay deter-  
7 mined by the PMD of the fiber.

1 3. (currently amended) Method as claimed in claim 1  
2 [[or 2]] characterized by the additional step of  
3 determining an average of measurements of said informa-  
4 tion content whereto said probability density is to be associated.

1 4. (currently amended) Method as claimed ~~in any of the~~  
2 ~~previous claims~~ claim 1, characterized in that said information  
3 content comprises a single numeric value determined by the position  
4 of said at least one side lobe in the interferogram.

1 5. (currently amended) Method as claimed in ~~claims 1~~  
2 ~~through 3~~ claim 1 characterized in that said information content  
3 comprises a plurality of values determined by the position of said  
4 at least one side lobe in the interferogram.

1 6. (currently amended) Computer product able to be  
2 directly loaded in the internal memory of an electronic measuring  
3 device and comprising portions of software code to implement the  
4 method as claimed in ~~any of the claims from 1 to 5~~ claim 1 when the  
5 product is run on said electronic device.

1           7. (original) System for measuring the polarization  
2 mode dispersion of an optical fiber, comprising  
3           an optical source (21) able to generate an optical signal  
4 to be injected into the fiber (11) ;  
5           an interferometer (25) associated to the fiber and able  
6 to generate an interferogram comprising at least a central peak and  
7 two side lobes having a determined information content;  
8 characterized by  
9           a device (27) connected to said interferometer and able  
10 to  
11                   process said interferogram in such a way as to  
12                   measure the information content of at  
13                   least one of said side lobes; and  
14                   ~~determining~~ determine the polarization mode  
15                   dispersion of the fiber associating to  
16                   said measurement of said information con-  
17                   tent a probability density function repre-  
18                   sentative of the polarization mode disper-  
19                   sion (PMD) of the fiber in the form of  
20                   differential group delay.

1           8. (original) System as claimed in claim 7, character-  
2 ized in that said device (27) comprises  
3           a first module able to compute the deconvolution of said  
4 at least one side lobe with said central peak so that said  
5 deconvolution corresponds to the probability density of the differ-  
6 ential group delay determined by the PMD of the fiber.

1           9. (currently amended) System as claimed in claim 7  
2 [[or 8]], characterized in that said device comprises  
3           a second module able to determine an average of measure-  
4 ments of said information content whereto said probability density  
5 is to be associated.

1           10. (original) Device for measuring the polarization  
2 mode dispersion of an optical fiber into which optical signals have  
3 been injected, comprising  
4           an opto-electronic module (37) able to convert the  
5 optical signals into electrical signals;  
6           a display device (35) able to generate an interferogram  
7 comprising at least a central peak and two side lobes having a  
8 determined information content; characterized by  
9           a control unit (30) able to  
10           measure the information content of at least one  
11           of said two side lobes; and

12                    ~~determining~~ determine the polarization mode  
13                    dispersion of the fiber associating to  
14                    said measurement of said information con-  
15                    tent a probability density function repre-  
16                    sentative of the polarization mode disper-  
17                    sion (PMD) of the fiber in the form of  
18                    differential group delay.

1                    11. (original) Device as claimed in claim 10, charac-  
2                    terized in that it comprises

3                    a first program module able to compute the deconvolution  
4                    of said at least a side lobe with said central peak so that said  
5                    deconvolution corresponds to the probability density of the differ-  
6                    ential group delay determined by the PMD of the fiber.

1                    12. (currently amended) Device as claimed in claim 10  
2                    [[or 11]], characterized in that it comprises

3                    a second program module able to determine an average of  
4                    measurements of said information content whereto said probability  
5                    density is to be associated.